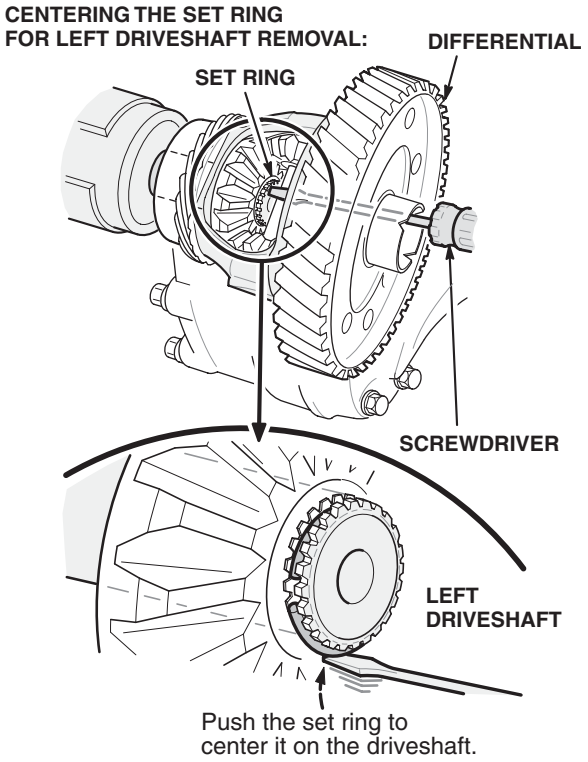
HONDA ServiceNews November 2005

Removing a Stuck Left Driveshaft: ’99–04 Odyssey

To keep the left driveshaft properly mated to the differential on a ‘99–04 Odyssey, the set ring on the end of the inboard joint compresses as it goes through the differential side gear and then expands on the other side of the gear. If the set ring isn’t centered when you pry out the inboard joint, the set ring will catch on the gear, causing the driveshaft to stick.

To remove a stuck left driveshaft, first remove the intermediate shaft. Then, looking into the right side of the differential, use a long, thin, flat-tip screwdriver to center the set ring on the end of the inboard joint. With the set ring centered, you should have no trouble prying the inboard joint away from the differential. But be careful not to damage the differential seal when you remove the driveshaft. And, to keep the inboard joint from pulling apart, make sure you remove the driveshaft by prying on the inboard joint, not by pulling on the driveshaft.



New TIME-SERT® Thread Repair Kit Available

The folks at the Time Fastener Company have come up with a new TIME-SERT® thread repair kit. This new kit handles the 10 mm x 1.25 mm head bolts used in the D16 engine for ’88–00 Civics. To order one of these new kits, call the Honda Tool and Equipment Program at **888-424-6857**. Ask for P/N TFC4160.

Cruise *Downhill* Without Tapping the Brakes

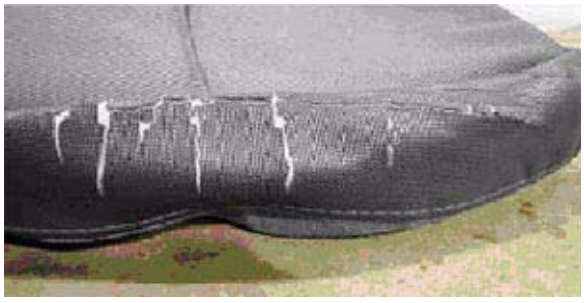
NOTE: This article applies to ’05–06 Accord Hybrids, ’06 Civics with A/T, ’05–06 Odysseys, and ’05–06 Pilots.

The cruise control has a cool driver convenience feature that lets you cruise *downhill* at your set cruising speed. Your speed seldom exceeds that setting, so you don’t need to tap the brakes to keep it constant. (Of course, tapping the brakes cancels the cruise control.)

With the cruise control set, the A/T downshifts itself when the vehicle speed starts to exceed your set cruising speed. When the vehicle doesn’t need additional engine braking, the A/T then upshifts to 5th gear.

Avoid Aftermarket Cleaners on Element Vinyl Seats Revised 4/12/06

The chemicals used in some aftermarket vinyl cleaners and protectants can leave vinyl seats in ’03–05 Elements prone to cracking. These chemicals loosen the PVC material’s molecular bond, making it softer and less durable. This action, combined with wear from heavy seat usage, can cause the material to crack.



If you’ve got a service customer that insists on using a vinyl protectant, we strongly suggest Honda Vinyl/Leather Protectant (P/N 08740-PC008, H/C 2140523). This silicone- and water-based product shields against damage caused by water, weather, and most spills. It renews vinyl and leather for a long-lasting shine. It’s also great for dashboards and tires.

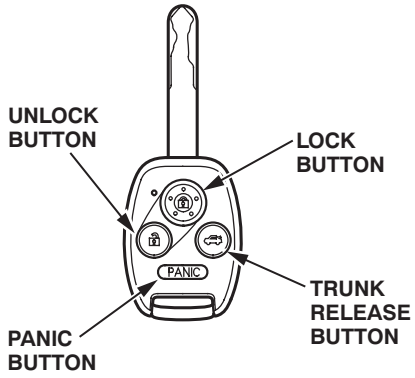
Let's Talk Keys, Keyless Remotes, and Immobilizer System: '06 Civic Revised 5/2/06

With '06 Civic sales now in high gear, we thought we'd take the opportunity to give you some helpful info on the keys, keyless remote transmitters, and the Type 6 immobilizer system used in these vehicles.

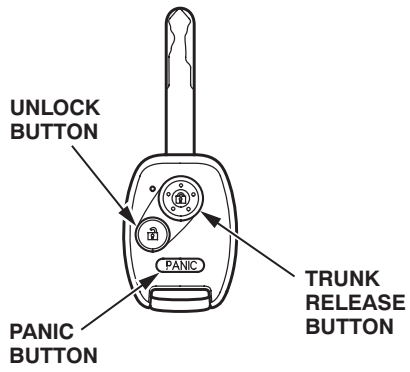
Master Key

The master key for the '06 Civic varies by trim level. All master keys are a rolling code, sidewinder type. Since the Type 6 immobilizer system uses a rolling code, you can't duplicate this key with the Ilco Key Code Duplicator and an Ilco T5 programmable key blank. Here's the lowdown:

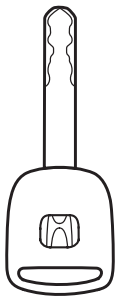
- **Civic EX, Civic Hybrid** - This key (P/N 35111-SVA-306, H/C 8057614) has a keyless remote transmitter with a built-in immobilizer transponder (P/N 72147-SNA-A11, H/C 8053191). This transmitter has *four* buttons: LOCK, UNLOCK, TRUNK RELEASE, and PANIC.



- **Civic LX** - This key (P/N 35111-SVA-305, H/C 8057606) has a keyless remote transmitter with a built-in immobilizer transponder (P/N 72147-SNA-A01, H/C. 8053183). This transmitter, though, has only *three* buttons: LOCK, UNLOCK, and PANIC. There's no TRUNK RELEASE.

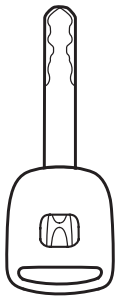


- **Civic DX** - This key (P/N 35118-SDA-A01, H/C 7198906) has only an immobilizer transponder built into its grip. It doesn't have a keyless remote transmitter.



Valet Key

The valet key for the '06 Civic (P/N 35119-SDA-A01, H/C 7198898) is a rolling code, sidewinder-type. It's the same for all trim levels. And since it's a rolling code type, like the master key, you can't duplicate it with the Ilco Key Code Duplicator and an Ilco T5 programmable key blank.



Type 6 Immobilizer System

The Type 6 immobilizer system uses an immobilizer-keyless control unit that's mounted to the ignition key cylinder. It stores both the immobilizer transponder codes and the keyless remote codes.

When adding or replacing the keyless remote transmitter for a Civic EX, Civic Hybrid, or Civic LX master key, you *must* use the HDS. Make sure you select **IMMOBI** from the **System Selection Menu**, **Immobilizer Setup**, and then **Add and Delete Keys**. This procedure automatically programs the keyless remote transmitter and adds the immobilizer transponder code to the system.

The Maintenance Minder System: Another Look

NOTE: This article applies to '06 Accords, '06 Civics, '05–06 Odysseys (all models except Touring), '06 Pilots, '06 Ridgelines, and '06 S2000s.

In the September '05 issue of *ServiceNews*, we told you all about the maintenance minder system (see the article "Taking the Mystery Out of the Maintenance Minder System"). There are a couple of more things we need to mention about this system.

Maintenance Minder Indicator - Unlike the **MAINT REQ'D** indicator found in models without the maintenance minder system, this indicator is an icon (it's an amber-colored wrench) instead of text. And, because it uses a different logic from the **MAINT REQ'D** indicator, you'll *never* see it blink. Here's how the logic works for the maintenance minder indicator:

Oil Life (%) or Negative Mileage	Maintenance Minder Indicator
100 to 16%	The indicator is off. It *only* comes on for the bulb check.
15 to 1%	The indicator comes on steady when you turn the ignition switch to ON (II). It goes off when you switch the information display from the engine oil life display to the odometer, trip meter, or outside temperature (if equipped). When you switch back to the engine oil life display, the indicator stays off. It comes back on when you turn the ignition switch to ON (II).
0% or Negative Mileage	The indicator comes on steady when you turn the ignition switch to ON (II). It stays on even if you switch the information display.

Negative Mileage Display - If the oil life drops to **0%** and you just ignore it, the engine oil life display starts clicking off the number of miles past the point the oil life reached **0%**. How negative mileage is displayed and when it's displayed depends on what model and trim level you're looking at, so check the appropriate O/M for details. Regardless of the model, though, when you turn the ignition switch to ON (II), the **0%** and negative mileage shown starts blinking as a reminder to get that oil changed ASAP.

Grinding, Growling From the Front Brakes

Got a '05 Odyssey in your shop that grinds or growls from the front brakes when you press the brake pedal with moderate to hard pressure at low speeds? The brake pad friction material is the likely culprit.

There's an improved friction material currently in development that will fix this problem. Watch for an announcement in an upcoming S/B. At this time, though, we don't recommend replacing the brake pads with the ones currently in parts stock; you won't get a lasting repair. We also ask that you don't call Tech Line about this problem, there's nothing they can really do to help you right now.

Although this noise is annoying, it *doesn't* affect safety, braking performance, or the life of the braking system components. Make sure you let your service customers know this, but above all, assure them relief *is* on the way.

Use a Steamer to Smooth Out Fabric Upholstery

A garment steamer and a stiff-bristle brush make a great team for removing those nasty wrinkles, lines, or impressions in fabric upholstery. You can buy an inexpensive, small, hand-held garment/fabric steamer from a number of different manufacturers. Some of these units even come with a handy built-in brush.

Once you've got your steamer, follow the manufacturer's instructions to get it ready for use. Then apply a generous amount of steam to the problem area. Keep the steamer moving slowly over the area until it's hot and moist.

A Word of Caution: Go easy on the steam if you're cleaning the front passenger seat in a vehicle with side airbags. Moisture can adversely affect or damage the OPDS sensors in the seat-back.

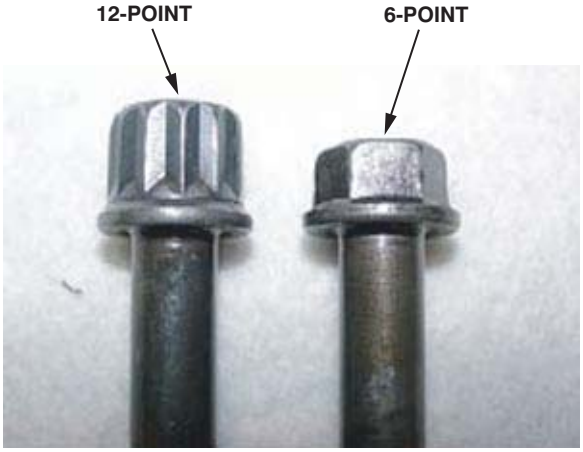
While the area is hot and moist, use a stiff-bristle brush, or the built-in brush if your steamer has one, to work the fabric back and forth and up and down. Stubborn areas might need more steam and brushing, so be patient and stay with it. It's worth the effort.

Head Bolt Design Changed for V6 Engines

NOTE: This article applies only to '05 Honda V6-equipped models built in North America.

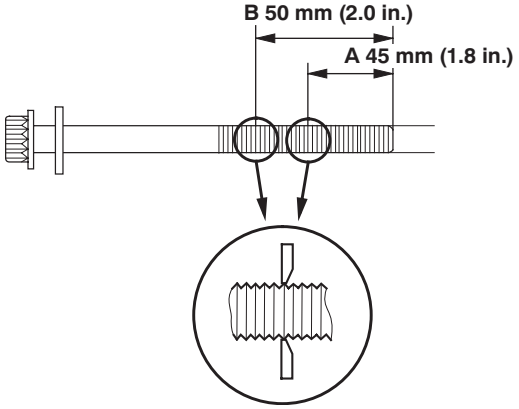
In July '05, our Ohio engine plant and Alabama factory changed the type of cylinder head bolts used to assemble V6 engines.

The original head bolts were **6-point, elasticity range** bolts. You tighten these bolts using a three-step torque method. The new head bolts are **12-point plasticity range** bolts. You tighten these bolts using a torque angle method.



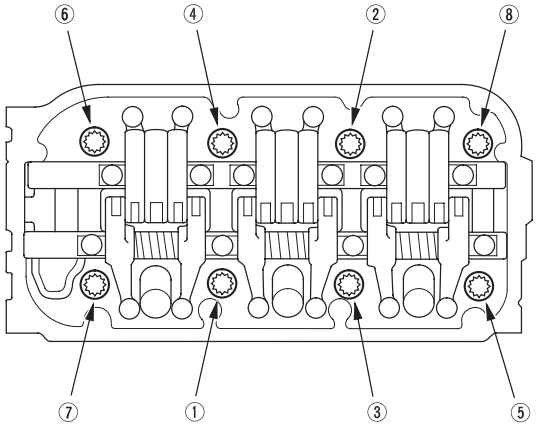
As a rule, you should *never* mix these two different bolt types. Mixing the bolts, or switching between their bolt tightening methods, could cause bolt failure or cylinder distortion. *Always* order the same type of head bolts that *originally* came with the engine. If, for instance, the engine came from the factory with 6-point bolts, *don't* order 12-point bolts, even if you're replacing all the bolts. The parts catalog lists both types of bolts for '05 vehicles. You can take the guesswork out of ordering if you've got the vehicle's engine number handy.

Before reusing 12-point bolts, you need to measure the bolt diameter in two places. If either diameter is less than **11.3 mm (0.44 in.)**, you *must* replace that bolt. If you're using 6-point bolts, you can keep using the same ones again and again, unless, of course, they're damaged.

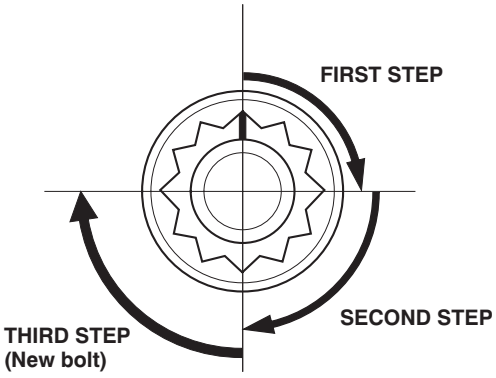


If you're using 6-point bolts, follow the three-step torque method in the appropriate S/M. If you're using 12-point bolts, follow the torque angle method in these steps:

1. Apply fresh engine oil to the threads and under each bolt head.
2. Use a beam-type torque wrench to torque the bolts in sequence to **29 N·m (22 lb-ft)**. If you're using a preset torque wrench, make sure you torque them slowly to prevent overtightening. If a bolt makes a noise while you're torquing it, loosen that bolt and torque it again from the first step.



3. When you're done torquing all the bolts, tighten them further in two steps (**90 degrees** per step) in sequence. If you're using a new bolt, tighten that bolt an extra **90 degrees**. If you tighten a bolt beyond the specified angle, remove that bolt and remeasure its diameter. Replace the bolt if needed. Don't loosen it back to the specified angle.



IMPORTANT: Make yourself a copy of this article, and keep it at your workstation. Not all S/Ms include this 12-point head bolt info yet. Those S/Ms will be revised at a later time.

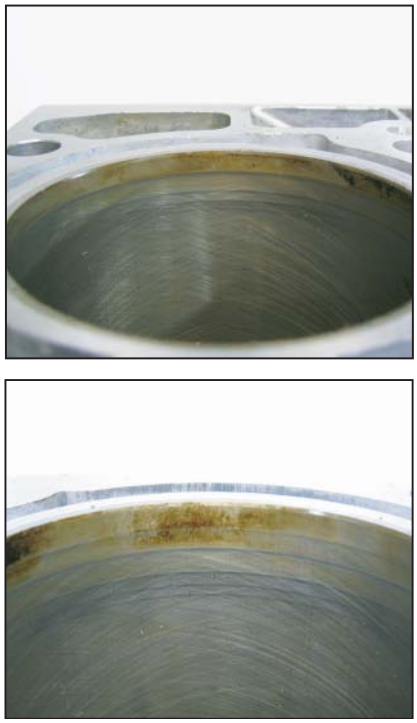
Why Do Connecting Rods Break?

Curious why connecting rods break? After all, these are heavy-duty parts specifically designed to endure punishing forces and temperatures. Yet, every once in a while they do bend or break and wind up as cool conversation pieces for a coffee table or desk.

Connecting rods break only after they've gotten bent. And they won't get bent unless the engine hydro-locks or the rod bearings fail.

When troubleshooting a bent or broken connecting rod, here are some things to consider:

- The number one culprit for connecting rod breakage is hydro-lock. This happens when liquid (water or fuel) entering the combustion chamber exceeds the chamber's volume. Since liquids don't compress, that extra volume in the chamber causes the rod to bend. You won't really notice anything wrong, until that bent rod finally gives out and breaks. This could happen if you're driving through deep, standing water and someone coming the other way splashes water over your hood. On very rare occasions, a bad ECM/PCM or fuel injector can cause too much fuel to enter a cylinder, causing hydro-lock and resulting in a bent rod. Before this happens, though, there are usually some kind of driveability problems that crop up and remain after the engine is fixed.
- A bent rod might not show any symptoms until it actually breaks. But bent rods leave a wider-than-normal carbon witness line in the cylinder because they're shorter. Typically, a healthy engine has a carbon line that's **6 mm** deep. An engine that's suffering from bent rods has a second carbon line that's **9 to 12 mm** deep.



- Connecting rod bearings fail for a number of reasons. To properly determine what actually caused a rod bearing to fail, you've got to take apart all rod bearings and main bearings and compare them side by side. If all or most of the bearings and journals show similar damage (scoring, exposed copper, or heat discoloration) the likely cause is oil starvation, poor maintenance, customer abuse, or running the engine with an aftermarket power booster (nitrous oxide setup, supercharger, turbocharger). If only the bearing or journal for the failed rod looks bad but all the other ones look good (no scoring, no exposed copper or heat discoloration) and the crankshaft journals are smooth with no heat discoloration, then that particular bearing/ clearance would be suspect.

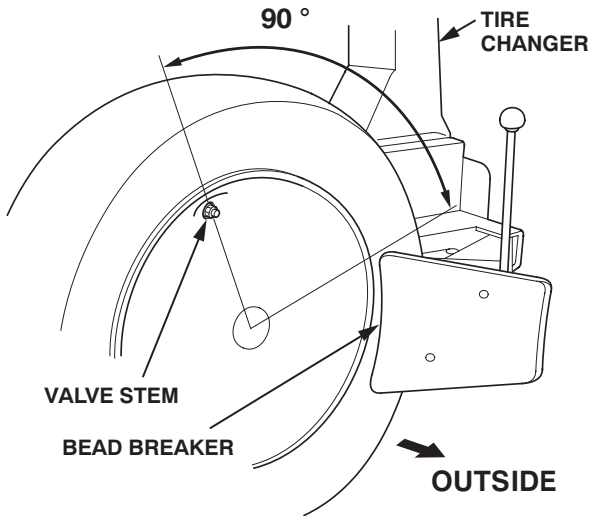
Damaged Valve Stem in a TPMS Wheel? Replace the Entire Valve Stem Assembly

NOTE: This article applies to '05–06 Odysseys (except Touring models), '05–06 Pilots, and '06 Ridgelines. Odyssey Touring models have PAX tires. *Never* attempt this repair on a PAX tire. It can only be repaired by a PAX-certified Michelin tire store.

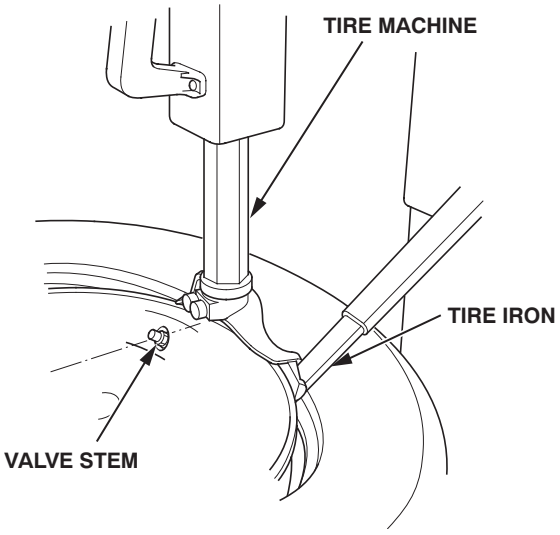
Need to fix a TPMS-equipped wheel for a damaged valve stem? Here's how you go about doing it:

Removing the Original Valve Stem Assembly

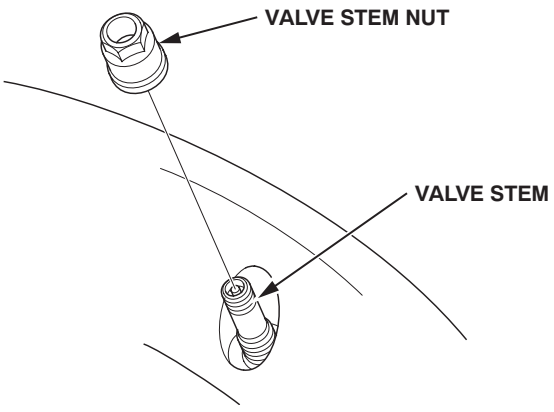
1. Raise the vehicle on a lift.
2. Remove the wheel that's got the damaged valve stem.
3. Carefully remove the valve stem cap and the valve core, then let the tire deflate.
4. Remove any balance weights. Use a commercially available tire changer to break loose the bead from the wheel. Keep these things in mind as you do this:
   - Start with the outside of the wheel.
   - Set the wheel so the valve stem is **90 degrees** from the bead breaker.
   - Don't position the bead breaker too close to the wheel rim.



5. Position the wheel so the tire machine and the tire iron are next to the valve stem and will move away from it when the machine starts. Then remove the tire from the wheel.

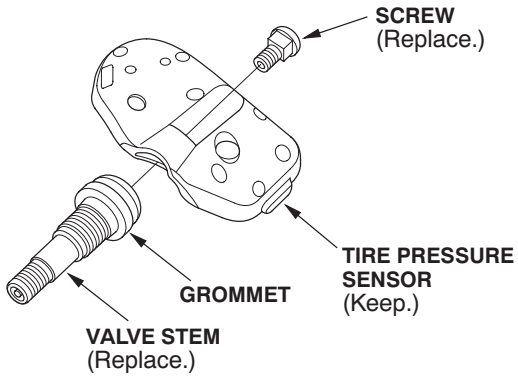


6. Remove and discard the valve stem nut, then remove the tire pressure sensor and the valve stem from the wheel. *Never* reuse the valve stem nut; it's a one-shot item that *must* be replaced. If the valve stem nut is seized on the valve stem and won't budge, go to step 7. Otherwise, go to step 9.



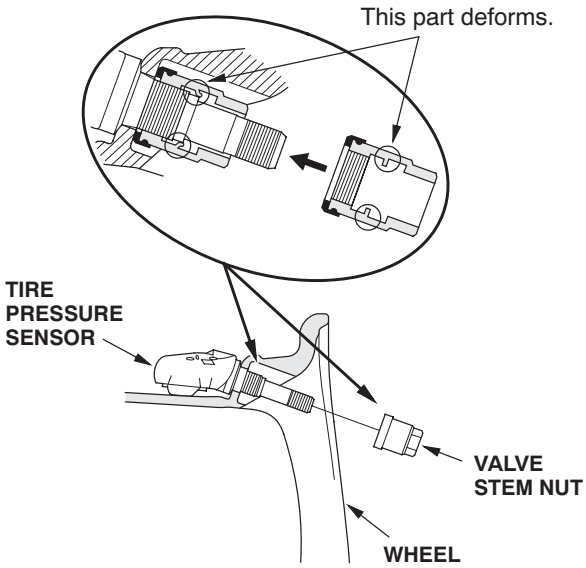
7. Slowly turn the valve stem counterclockwise until the tire pressure sensor drops off the end of the valve stem. Discard the screw, but keep the sensor. Also, make sure the valve stem grommet is removed; sometimes it gets stuck in the wheel.
8. Use a power drill with an **11 mm** drill bit to drill out the hole in the valve stem ball just enough so you can remove the valve stem from the wheel. Be careful not to damage the wheel as you're doing this step. When you're done, go to **Installing the Replacement Valve Stem Assembly**.

9. Remove the valve stem and the screw from the tire pressure sensor. Discard the valve stem and the screw, but keep the sensor. Also, make sure the valve stem grommet is removed; sometimes it gets stuck in the wheel.



Installing the Replacement Valve Stem Assembly

1. Insert the new screw into the tire pressure sensor, then screw on the new valve stem, finger-tight.
2. Clean the mating surfaces on the tire pressure sensor and the wheel.
3. Install the tire pressure sensor in the wheel, and secure it with the new valve stem nut, finger-tight. Make sure the sensor is resting on the wheel.



4. While holding the tire pressure sensor toward the wheel, torque the valve stem nut to **4.0 N·m (36 lb-in)**. You might hear a snap or pop as you torque the nut; don't worry, it's normal. When doing this step, keep these things in mind:
   - *Never* reuse a valve stem nut that's been torqued even once to spec; it's deformed inside.
   - *Never* use air or electric impact tools to torque a valve stem nut. Torquing the nut past the spec can damage its threads. Use only a precision torque screwdriver that can read **36 lb-in**. If your shop doesn't have one, call the Honda Tool and Equipment Program at **888-424-6857** and ask for the Torque Screwdriver (Model No. CD1401SM) made by CDI Torque Products.
   - Make sure there's no gap between the tire pressure sensor and the wheel.

5. Lubricate the tire bead, and position the wheel so the tire machine and the tire iron are next to the valve stem and will move away from it when the machine starts. Then mount the tire onto the wheel.
6. Inflate the tire to **44 psi** to seat the tire bead to the wheel rim. Then adjust the tire pressure to the value on the driver's doorjamb sticker, and screw on the valve stem cap. Make sure the tire bead is uniformly seated on both sides of the wheel rim.
7. Check and adjust the wheel balance. Then mount the wheel on the vehicle, and torque the wheel nuts to **108 N·m (80 lb-ft)**.
8. Lower the vehicle.

Warranty Parts Retention of Driveshaft Boots and Bands

We got a request recently from our Ohio factory to make sure all Honda dealerships save the boot band along with the old driveshaft boot when repairing driveshafts under warranty. The boot band includes important lot control numbers that the factory can use to track down any potential problems that could happen at the factory or during vehicle transport.

When you cut off the boot band, fold it over and stick it inside the old driveshaft boot Hang onto these parts until you're either asked to return them by the factory warranty group or you're authorized to do your normal parts scrapping.

Getting Rid of Stains on Chrome or Stainless Steel

Unsightly stains on chrome or stainless steel trim around the door glass no longer means trim replacement. A good-quality chrome or aluminum polish, some careful masking to protect rubber molding and painted surfaces, and a little bit of elbow grease, can work wonders to get back that showroom shine. A couple of good brands to try are Mothers PowerMetal™, or Meguiars All Metal Polish or NXT Generation™ All Metal Polish.

CHECK FUEL CAP, TIGHTEN FUEL CAP Messages

NOTE: This article applies to '05–06 Accords, '06 Civics, '05–06 CR-Vs, '05–06 Elements, '05–06 Odysseys, '05–06 Pilots, '06 Ridgelines, and '06 S2000s.

If a vehicle's fuel fill cap is loose or missing, and the ECM/PCM detects an EVAP system leak when it runs the EVAP monitor, the **CHECK FUEL CAP** message appears on the information display when the engine is started. (On '06 Odyssey Touring models and future Honda models, it's the **TIGHTEN FUEL CAP** message.) A temporary DTC is also stored in the ECM/PCM's memory. If this happens, there's really no need for the owner to bring the vehicle in for service. All he or she has to do is shut off the engine and make sure the fuel fill cap is in place and it's properly tightened (it's *one* or *three* clicks, depending on what's written on the cap).

Although the owner can cycle the message from the display with the reset button (the actual button name varies by model), the temporary DTC that's setting the message is still there. This means the message never really goes away. It can be cycled back with the reset button, and it comes on again if the ignition switch is cycled or the engine is restarted. This message keeps coming back until the EVAP monitor runs again and it finds no EVAP system leak. This could take several days, even weeks, depending on how often the vehicle is driven.

If, when the next EVAP monitor runs, the cap *wasn't* tightened or there's another EVAP system leak detected, the MIL comes on and the message goes off. A permanent DTC is now stored in the ECM/PCM's memory. If the owner now tightens the cap, the MIL should go off after the next EVAP monitor run, yet, this could still take days or weeks. If the MIL is still on after that monitor run, then it's time to bring the vehicle in for service.

If the vehicle comes into your shop with the fuel cap message or the MIL on, make sure the fuel fill cap is in place and properly tightened. Record the DTC, then clear it with the HDS, and run the EVAP system function test. If there's still a problem, press on with normal troubleshooting

Know Your Low Tire Pressure and TPMS Indicators

NOTE: This article applies to '05–06 Pilots, '05–06 Odyssey Touring models, and '06 Ridgelines.

Do you know the difference between the low tire pressure indicator and the **TPMS** indicator? Service customers sometimes get these two indicators mixed up, so they might tell the service advisor " A light came on in my dash, and I think it's got something to do with tire pressure." If the RO doesn't clearly state which indicator is involved, knowing which one it is could mean the difference between a simple job and a lot of wasted troubleshooting time and effort.

Low Tire Pressure Indicator - This *icon* indicator comes on when the tire pressure is **25%** below its recommended value listed on the driver's doorjamb sticker. (On Odysseys, you'll also see a **CHECK TIRE PRESSURE** message in the MID.) This value is always the recommended cold inflation value.

When this indicator comes on, the TPMS control unit sets one or more of these DTCs:

- TPMS DTC 11 (right-front low tire pressure)
- TPMS DTC 13 (left-front low tire pressure)
- TPMS DTC 15 (right-rear low tire pressure)
- TPMS DTC 17 (left-rear low tire pressure)

If this is the indicator the RO says came on, check the tire pressure against its recommended value. Check for a leak if you suspect there might be one; otherwise, set the tire pressure accordingly. Always check tire pressures when the tires are cold, and make sure you're using an accurate tire pressure gauge when you do. Accuracy can sometimes be an issue with these gauges, so it's a good idea to calibrate your tire pressure gauge often.

If the RO isn't clear about whether this indicator came on, and you don't see it on, a quick check with the HDS for TPMS DTC 11, 13, 15, or 17, will tell the story.

Something else to keep in mind: Colder weather means lower tire pressures. A **10°F** change in tire temperature changes tire pressure by **1 psi**. If the tire pressure was already below its recommended value—even by only **20%**—a big dip in temperature could cause the indicator to come on.

Here's a typical scenario to show just what we're talking about. The tire temperature was warm from driving (**90°F**) when the tire pressure was checked and set it to its recommended value. Your customer then parked the vehicle outside and the outside temperature and the tire temperature plummeted to **10°F**. This **80°F** drop in tire temperature causes a corresponding **8 psi** drop in tire pressure. If the tire pressure gauge was off by **+ 1 psi**, now you're dealing with a **9 psi** change in tire pressure. This will cause the low tire pressure indicator to come on and the TPMS control unit to set a TPMS DTC. When the tire heats up from driving, the tire pressure rises and the indicator will go off. In cold weather, this could happen a lot.

TPMS Indicator - This *text* indicator comes on and *stays* on when there's a definite problem with the TPMS as a system. (On Odysseys, it's a **CHECK TPMS SYSTEM** message in the MID.) The TPMS shuts off and stops monitoring tire pressures. If this indicator or message is on, use the HDS to check for set TPMS DTCs in the TPMS control unit and troubleshoot accordingly.

Tips From Training: Honda & Penn College Partnership

Pennsylvania College of Technology in Williamsport, PA, recently became American Honda's newest partner in the Professional Automotive Career Training (PACT) program.

This associate-degree PACT program dovetails with Penn College's own unique combination of automotive and academic training to give tomorrow's service techs the skills they need to find work at Honda dealerships.

This college is the first partner school at which students can transfer into a four-year automotive technology management major to give them an even sharper edge in the working world. Students will leave Penn College with a solid understanding of Honda products and will be credited with about 65 percent of the training they'll need as service techs.

In addition to internship opportunities with sponsoring Honda dealerships throughout the mid-Atlantic region, American Honda provides special tools, a fleet of vehicles on which PACT students get to work on, and state-of-the art instructor training.

The first PACT offerings will be in the Spring '06 semester, with the first internship opportunities coming up that following summer. Course work is taught by ASE-certified instructors, under the stringent guidelines of the National Automotive Technicians Education Foundation.

For more info about Penn College's PACT program, e-mail them at transportation@pct.edu. You can also call the School of Transportation Technology at **570-327-4516** or visit their website at *www.pct.edu/schools/tt*.

AUTOMOTIVE Youth Educational Systems YES ®

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